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L26: Entry 1 of 2   File: PGPB   Aug 28, 2003

DOCUMENT-IDENTIFIER: US 20030163784 A1
TITLE: Compiling and distributing modular electronic publishing and electronic
instruction materials

Abstract Paragraph:
The disclosed systems and methods for computer aided instruction and electronic
publishing employ modular design approaches whereby instructional and informational
content is broken into multi-level objects including self-contained electronic
learning and electronic content objects. The system and method facilitates the
development, maintenance and modification of course and publication content because
they may be advantageously located centrally in a large library of independent
electronic learning and electronic content objects that serve as building blocks
for electronic courses and publications. Modular CAI systems and methods of the
invention can be used to monitor student progress both by administering
examinations and tracking what content particular students have accessed and/or
reviewed. In preferred embodiments, the invention includes authors using the
Internet-accessed tools and templates to compile instructional and informational
content, and the subsequent delivery of web-based instructional or informational
content to end users such that the end users can receive and review such content
using computing devices running standard web browsing applications.

Current US Classification, US Primary Class/Subclass:
715/514

Current US Classification, US Secondary Class/Subclass:
715/500

Current US Classification, US Secondary Class/Subclass:
715/530

Summary of Invention Paragraph:
[0002] The present invention relates to the field of electronic publishing and
computer delivered instruction. More particularly, the present invention relates to
methods and systems for compiling and delivering electronic publications and
computer aided learning materials that are adapted to convey information to and
obtain feedback from a plurality of users via electronic communication networks.

Summary of Invention Paragraph:
[0003] Currently, various computer aided instruction ("CAI") and electronic
publishing ("e-publishing") approaches and technologies are known. While a great
deal of interest has arisen in this field recently due to increasing pervasiveness
of the Internet, computers digital media within everyday life, and especially into
the workplace and classroom, the current approaches employed in CAI and e-
publishing often relegate computer-based learning and information delivery to an
unacceptable alternative to more traditional classroom instruction and publishing
mechanisms. In the practice of these current CAI and e-publishing approaches,
several prevalent problems arise in the area of course and publication development
and maintenance, and in end user progress management.

Summary of Invention Paragraph:

[0009] While mainframe-based CAI systems, because of their ability to hold course and student data in a centrally accessible database, may alleviate the problems inherent in electronic course maintenance and student progress management, they do not address problems inherent in course development. The subject matter knowledge required to instruct students, or "instructional knowledge," and the knowledge necessary to compile instructional information into a readily deliverable e-learning format, or "programming knowledge," are typically not contained by a single person. A similar mismatch of subject matter knowledge and programming knowledge manifests problems in electronic publishing. Thus, in creating, modifying and maintaining CAI courseware and e-publications, a subject matter expert, such as a course instructor or topic author, respectively, is needed to supply current instructional or informational knowledge on a topic while a separate networking system administrator ordinarily is necessary to compile the information into a computerized instruction or publication format. Current mainframe-based CAI systems still have not satisfactorily simplified the task of compiling instructional information into a computer deliverable format. Similarly, contemporary mainframe approaches for managing and compiling digital publication content has suffered from an inability to easily adapt to collaborative publishing over the Internet.

Summary of Invention Paragraph:
[0027] In preferred embodiments of the present invention, the systems, methods and tools permit authors to create transformational publications from existing electronic publications whereby the layout and navigational structure of an original electronic publication is automatically converted to a new layout and navigational structure to produce a transformed publication having the same content of the original electronic publication. In this manner, the operation and structure of an e-content publication or e-learning course can be altered to suit preferences of target end users or to meet delivery constraints (e.g., bandwidth of end user network connections). Additionally, authors and course instructors can change the look and feel of a particular course by applying graphical skins to make any given set of e-learning or e-content objects, no matter when they were produced, have a similar look and feel. In this manner, all of the courses or publications relating to a particular company, group, etc., can provide end users with a consistent appearance and interface layout.

Summary of Invention Paragraph:
[0030] Similarly, in embodiments of the present invention, the software may be adapted to let readers or students access and interact with desired informational and instructional materials by serving the appropriate objects for those materials in a hardware independent page description language via a distributed network, such as the Internet, using appropriate communication software run by the client devices. In preferred embodiments of the invention, the informational and instructional materials are compiled and provided in a standardized format to allow simplified connectivity to the network and accessing of the materials. Most preferably, the materials are compiled into various e-learning or e-content objects which are compliant with various electronic publishing and electronic instructional standards, including the SCORM standard.

Detail Description Paragraph:
[0078] While it is possible, of course, to install both the database serving and the web serving software on the same physical device, generally it is recommended that a separate machine from the web server 306a be used as a database server 207a as depicted in order to optimize performance. In addition to a web server 306a and a database server 307b as shown in FIG. 3, other servers may be needed in alternative embodiments depending upon the nature of the content being compiled with the administration tool. For example, a reporting system could use a Crystal Reports web server or other dedicated reporting server to enable generation and delivery of administrative reports via the web. In such embodiments, the reporting web server would need to be installed in the server system 306. Additionally, depending on the nature of the instructional or informational materials present in

the objects, streaming media servers may be needed in order to fully use the
preview functions of the system. For example, full support for the use of Real
Audio and Real Video or other like streaming media content within objects would
require the addition of a suitable streaming media server within the central
network 301.

Detail Description Paragraph:
[0112] FIG. 16 depicts the display of a web page 1600 that is the same as web page
1200 of FIG. 12 except that the author has selected (shown by highlighting in the
library tree) a different publication (entitled "AVA00079WEN How We Do Business").
Similarly, FIG. 17 depicts the display of a web page 1700 which serves a similar
purpose to that of web page 1500 of figure, except that the metadata displayed in
web page 1700 is associated with page "Sample Project Manager Bio," which is part
of e-learning object "Sample Background on Project Manager," which in turn is part
of module "Project Manager Information." The comparison of FIGS. 12-17 should make
it apparent to one of ordinary skill in the art how an author could use the
publication library to locate different publications of different types, and to
review the contents of those publications. In a manner similar to that described
with respect to publication libraries, it would of course be possible for authors
in such preferred embodiments of the invention to peruse object libraries and
review and revise the information and metadata of desired objects.

CLAIMS:

1. A method for compiling and distributing electronic publications, said method
comprising: creating a library containing a plurality of electronic content
objects, each of said electronic content objects comprising self-contained units
containing informational content relating to a topic or subtopic; creating a
topical outline designating topical levels for a desired publication, said topical
outline detailing the order of one or more desired topics or desired subtopics in
said desired publication according to said designated topical levels; selecting a
subset of electronic content objects relevant to said desired topics and desired
subtopics; assembling said selected electronic content objects according to said
topical outline to create said desired electronic publication; and publishing said
desired electronic publication.

31. The method of claim 1, wherein said publishing of said desired electronic
publication comprises compiling said selected electronic content objects into code
defining web pages containing said informational content, said web pages being
interrelated as defined by said assembling of said selected electronic content
objects into said topical outline, and wherein said web pages are served to end
users using appropriate networking protocols upon demand from said end users.

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L16: Entry 1 of 1   File: USPT   Jan 4, 2000

DOCUMENT-IDENTIFIER: US 6012071 A
TITLE: Distributed electronic publishing system

Brief Summary Text (24): ·
By utilizing the design and layout tool, a publisher is able to separate a
publication's content from its format (e.g., size, position, font, resolution,
background color, interrelationship of regions, etc.). That is, rather than enter
the actual contents as well as the corresponding format into the publication file,
the page designer may simply define a set of instructions to access an information
file or files and display the contents thereof in a given region. Moreover, by
simply updating the associated information file(s), which may be located remotely
from the server at which the publication file is stored, the corresponding
information displayed is updated. Thus, the publisher need not edit the publication
file every time the information in one region needs to be updated or changed.

Detailed Description Text (6):
When the page designer has completed defining the electronic publication 100, the
Tool 200 preferably stores, in the publication file 201, a description of the
layout of the publication including instructions for obtaining and formatting each
of the regions. It should be understood that the Tool 200 may encrypt the contents
of the publication file 201. The Tool 200 also produces the web page HTML file 204,
which contains an applet tag or plug-in 232. The applet tag or plug-in 232
preferably contains a URL 234 of the publication file 201 and a URL 236 of the
downloadable viewer file 206. The publication file 201 and the downloadable viewer
file 206 are preferably stored in subdirectories of the directory that stores the
web page HTML file 204.

CLAIMS:

1. A distributed system for displaying an electronic publication, the system
comprising a first computer called a client, a second computer called a server, and
a computer network interconnecting the client and the server, wherein:

(a) the server stores a publication outline file, the publication outline file
defining a layout of the electronic publication such that the electronic
publication contains at least one region, and for each region, the publication
outline file containing formatting instructions for how to format information
displayed within each region, the formatting instructions including at least a name
of a font file containing fonts to be used in displaying text content information
within the corresponding region, as well as locating instructions for how to locate
content information for each respective region, the content information being
stored in a file separately from the formatting instructions in a content file
different from the publication outline file, and upon request from the client, the
server sends the publication outline file to the client; and

(b) the client executes an application program to obtain the publication outline
file, and for at least one region defined therein, to obtain the content
information by following the respective locating instructions to locate the content

file to obtain the content information stored therein, and to determine whether a
specified font file by the formatting instructions is already stored locally at the
client, and if not, to download the specified font file to the client and using the
specified font file in a manner such that if another program requests a list of
installed fonts the specified font file appears to not be installed at the client,
to format the content information according to the respective formatting
instructions, including formatting text content information using the specified
font file, and then to display the formatted content information at the client.

14. A system as in claim 1 wherein the network comprises local networks
interconnected by an Internet, the publication outline file is stored as a file in
a network server connected to the Internet, and the locating instructions include a
Uniform Resource Locator (URL) specifying the location of content file located
within servers connected to the local networks such that the display of a given
publication outline results in two different displays for client computers
connected to two different local networks.

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L22: Entry 19 of 20   File: USPT   May 25, 1999

DOCUMENT-IDENTIFIER: US 5907837 A
** See image for **Certificate of Correction** **
TITLE: Information retrieval system in an on-line network including separate
content and layout of published titles

Brief Summary Text (7):
In any large city, it is impossible for a single individual to keep up with the
activities and events unfolding in the community. Consequently, people turn to
writers, reporters, editors, critics, and others, for help in understanding and
structuring the information available. In a related trend, broadcast media are
increasingly unable to satisfy the needs of a diverse populace. Consequently, in
most markets, narrowcast media (media that have tailored and distributed their
content to smaller, well defined audiences) have become increasingly popular and
profitable. In the on-line community this trend will be correspondingly more
important.

Brief Summary Text (24):
One aspect of the present invention is a method of computerized searching,
comprising the steps of: storing a plurality of content in a publication storage;
publishing a title to the publication storage, wherein the title comprises separate
content and layout, wherein the layout includes a search query associated with a
control, and wherein the control defines a region for displaying results of the
search query; retrieving content satisfying the query from the publication storage;
and displaying the retrieved content in the control.

Brief Summary Text (27):
Still another aspect of the present invention is a computer-implemented method of
searching a title, comprising the steps of: storing content in a publication
storage; publishing a title comprising separate content and layout to the
publication storage; and retrieving content from the publication storage satisfying
a user query.

Brief Summary Text (29):
Still yet another aspect of the present invention is a computerized method of
electronic publication, comprising the steps of: creating a title containing a
search query; storing the title in a publication storage; displaying the title,
wherein the search query retrieves content from the publication storage.

Brief Summary Text (31):
Another aspect of the present invention is a computer-implemented method of
searching a title using a search query, comprising the steps of: storing content in
a publication storage; checking a search cache for the search query and results
representative of content identification; retrieving the results of the search
query from the search cache if the search query is present in the search cache;
creating one or more subqueries based on the search query; checking the search
cache for the presence of one of the subqueries and a result of the subquery if the
search query is not present in the search cache; retrieving the results of the
subquery from the search cache if the subquery is present in the search cache;
applying the subquery to a database server; retrieving the results of the subquery
from the database server if the subquery is not present in the search cache; and

retrieving content from the publication storage corresponding to the retrieved results.

Detailed Description Text (31):
As an example of the use of search objects in constructing applications, consider the example of an on-line newspaper. The newspaper might consist of sections, including a Business Section. The newspaper designers, at design time, would place a search object within the Business Section of the newspaper. This search object would define the content folders from which to draw content. For example, the search object may be programmed (by setting its properties) to include within the Business section all stories in the Business content folder and all reports in the Stock Report content folder. A Find dialog allows customers, in essence, to personalize the business section, for instance by providing a query criteria that limits the scope of displayed business stories to a particular industry. Alternatively, the producer of the online publication might deliver targeted, customized versions of the publication to individual users by programmatically modifying the search object properties based on customer profiles or expressed interests.

Other Reference Publication (1):
European Search Report dated Oct. 13, 1998, corresonding to EPO Application No. 96118399.3-2201.

Other Reference Publication (2):
"Structured Documents" edited by J. Andre, R. Furuta & V. Quint, Cambridge series on electronic publishing; 2, First published 1989.

CLAIMS:

37. A computer-implemented method of searching a title, comprising the steps of:

publishing a title comprising separate content and layout to a publication storage, wherein the layout includes at least one search object;

creating a user query which modifies the search object; and

retrieving content from the publication storage satisfying the user query.

55. A computerized method of electronic publication, comprising the steps of:

creating within a computer a representation of a title of a story;

storing the representation of the title in a publication storage device; and

displaying the representation of the title, wherein the computer retrieves story content from the publication storage.

57. The method of claim 55, additionally comprising the step of storing story content in the publication storage device.

64. A computer-implemented method of searching a title using a search query, comprising the steps of:

storing content in a publication storage;

checking a search cache for the search query and results representative of content identification;

retrieving the results of the search query from the search cache if the search query is present in the search cache;

creating one or more subqueries based on the search query;

checking the search cache for the presence of one of the subqueries and a result of the subquery if the search query is not present in the search cache;

retrieving the results of the subquery from the search cache if the subquery is present in the search cache;

applying the subquery to a database server;

retrieving the results of the subquery from the database server if the subquery is not present in the search cache; and

retrieving content from the publication storage corresponding to the retrieved results.

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